A Comparative Study of Open Source Repository Software and its Application in University Libraries of Maharashtra & Gujarat

Synopsis submitted to

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1. Introduction

Information is a processed, organized and structured data. It provides context for data and enables decision making process. The rise of the Internet has created a huge opportunity for academics, scientists, and scholars to share their research output through ICT in one location. Open access efforts have been observed all around the world to encourage researchers to engage in research. E-journals, e-books, institutional archives, and other forms of open access publication have emerged. The rising demand for scholarly knowledge, particularly in science and technology, necessitates centralised access to institutionally rich resources revealing scientific production by scholarly societies and universities. The desire for expanded access is being driven by digital publishing, worldwide networking, more research, and increasing contact across communities of scholars.

Many technology trends and development efforts come together to make more efficient institutional repository. The building and establishment of institutional repository for any library is needy for collect, preserve, locate and store globally their digital content as well as the research work published by the teachers and also by the students. For research-intensive Universities, Academic Institute institutional repositories constitute critical research infrastructure. Through its scholarly outputs, a properly dimensioned institutional repository has the ability to raise research impact and enhance an institution's exposure.

Institutional Repositories were created as an online option for Universities, Colleges, and other Research Institutions to gather, preserve, and disseminate their work. The repository swiftly expanded into a platform for libraries to publish and promote their full body of work, including articles, books, theses, dissertations, and journals. The addition of support for photos, video, audio, and other media has given repository collections more dimension.

All of the digital advancements have positioned libraries that are investigating institutional repositories for the first time in an advantageous position. The products offer more features, and all of the major platforms are now accessible as a hosted service, which has a lower total cost of ownership and takes less time than hosting an institutional repository locally. Librarians

may now compare systems without restriction, concentrating on the important aspects that will meet their needs and help their repositories succeed.

Open Source Software (OSS) is a computer software is use, modify, as per the user needs. There is no limits to change the source code it means the user make changes in the OSS as per their needs. OSS is may be developed, distribute in a collaborative public manner. The term "open source" requires that no one can segregate against a bunch in not sharing the altered code or prevent others from altering their already-edited work. This approach to computer program advancement permits anybody to get and alter open-source code. These alterations are conveyed back to the engineers inside the open-source community of individuals who are working with the computer program.

Repository Software: There is now adequate easily available software to create and maintain an institutional repository. Dspace, GNU E-prints, HAL, OPUS, Bepress, ETD-db and Greenstone are some important software applications used to build an institutional repository. The Registry of Open Access Repositories (ROAR) listed 954 institutional repositories all over the world having more than Ten million records. At present India rank 12th in the list of countries with registered interoperable archives in ROAR.

Maharashtra and Gujarat these two states are most developing states of India in educational, industrial and economical aspects and both are located on the west side of India. Gujarat was possible as a result of trade, commerce and the dexterity of the people of Gujarat to accept and take in and make a part of all who come in here for succor, conquest or trade.

2. Statement of the Problem

The Statement of the problem is **A Comparative Study of Open Source Repository Software and its Application in University Libraries of Maharashtra & Gujarat**

3. Explanation of the key concepts

Information:

Information is processed, organized and structured data. It provides context for data and enables decision making process. Technically, information is the summarization and summarization of data. They are raw, unprocessed facts and figures.

Digital Content:

We can't do a single mouse click these days without coming across digital stuff. Digital Content, often known as digital media, can take numerous forms, ranging from text to audio and video files to graphics, animations, and photographs. Digital content, in most cases, refers to information that may be downloaded or distributed via electronic media.

Knowledge Resource Centre:

Knowledge Resource Centre previously known as Library. In this, new digital era all libraries are playing a vital role for providing a one stop solution of all types of educational needs of their users.

Repository:

A Repository is a network accessible server that holds scholarly material / electronic resources.

Institutional Repository:

An Institutional Repository is a tool for any academic institutions will increasingly be represented, documented and stored, shared and preserve in digital form. An institutional Repository (IR, also known as an e-prints archive) is a digital archive of research output created by an institution's faculty, research staff, and students that is accessible to end-users both inside and outside the institution via the Internet.

Open Access Repository:

An open-access repository, also known as an open archive, is a digital platform that houses research output and makes it freely available for anyone to use, download, and distribute. Such repositories must be interoperable in order to allow open access, according to the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). Search engines capture the content of open access repositories, creating a database of freely available research from around the world.

ROAR:

The Registry of Open Access Repositories (ROAR) is a searchable international database indexing the creation, location and growth of open access institutional repositories and their contents. ROAR was created by EPrints at University of Southampton, UK, in 2003. It began as

the Institutional Archives Registry and was renamed Registry of Open Access Repositories in 2006.To date, over 3,000 institutional and cross-institutional repositories have been registered.

DOAR:

DOAR stands for Directory of Open Access Repositories and it is a UK based website that lists an academic open access repositories.

Software Application:

An application is a computer software package that performs a specified function directly for an end user or, in some situations, for another application. The programme is a set of instructions that allows the user to operate the application.

Maharashtra:

Maharashtra is the second most populous state in India and the second most populous state in the world.

Gujarat:

Gujarat is a state on the west coast of India. It is the fifth-largest Indian state by area and the ninth-largest state by population.

4. Review of Related Literature

I, as a researcher searched a various books, journals, research journal papers in the high lighten area of the research and also visits the Shodganga and online catalogue (database) of thesis of INFLIBNET and various websites to find out the past recent studies in the connection of the research. This thorough search enabled the researcher to learn about earlier related work on the subject. The following are the some reviews:

1. According to Clifford Lynch "a university-based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution."

2. Emily Dill and Kristi L. Palmer (2005) described ideas behind the implementation of IR like ideas, required skills, and ideas about software or hardware and about the installation. Their further explanation about the testing of the IR and also about the interface of IR, organizational methods, promotional ideas, etc. There is a common as well as specific motivation behind establishing an IR and these motivations are more or less the same for every institution, which is to create, store and spread the scholarly output of the institution.

3. Role of the librarian in establishment and administration of IR is further discussed by Holly Phillips, Richard Carr Janis Teal (2005) in taking initiatives for developing IR, administration, policy making, education & metadata review, etc. He added some future roles for reference librarians too.

4. High use of the software has been observed in universities and research based institutions as a way to provide access to research output, scholarly publications, and more (Smith et al., 2003)

5. Branin (2003) in his draft paper on institutional Repositories in ―Encyclopedia of Library and Information Science described conceptual model and standards for a digital repository and basic components of an institutional repository. Other issues included organisation and management, funding and business models, accession policies, metadata, long-term preservation and access.

6. Shearer (2004) conducted a survey to determine the status of the institutional repositories at CARL member libraries. She reported that majority of the CARL libraries that are planning an IR intend to use the DSpace software. She reported that most of the CARL institutional repositories are being managed by one or two staff members on a part-time basis and have few dedicated resources for the institutional repository. In continuation Shearer (2005) conducted another survey to evaluate the content, policies, software platforms, and advocacy activities of member IR's.

7. Allard, Mack, and Feltner-Reichert (2005) identified six roles that are the responsibilities of librarians in the IR environment: understanding software,

project planning and management, collection definition, metadata guidance, submission review, and author training. Similarly Horwood, Sullivan, Young, and Garner (2004) discussed role of librarians in the development and promotion of institutional repositories as well as skills needed by library staff.

8. A book published by UNESCO authored by Anup Kumar Das (2008) gave very brief overview of institutional repositories in India. Unfortunately no qualitative research papers / reports or in depth study of Indian institutional repositories in this publication. Many of the articles available were descriptive not analytical therefore researcher did not find them very useful. No papers / reports were available on users of IRs that could have been used to compare with the findings of the present study.

9. The Dspace and Greenstone Computerized Library Computer program have made a difference spread the viable affect of digital library innovation all through the world, with specific accentuation on creating nations. (Biswas, Paul, 2010) As Dspace and Greenstone enters its moment decade, this article takes a review see at its advancement, the challenges that have been confronted, and the lessons that have been learned in creating and conveying a comprehensive open-source framework for the development of computerized libraries globally.

5. Objectives of the study

I. To identify and assess the functional online institutional repositories of Knowledge Resource Centers of all Universities of Maharashtra & Gujarat.

II. To investigate the available infrastructure and have a better understanding of the various software applications employed for institutional repositories of Knowledge Resource Centers of all Universities of Maharashtra & Gujarat.

III. To compare the software applications being used for institutional repositories at Knowledge Resource Centers of all Universities of Maharashtra & Gujarat.

IV. To find out the suitable criteria, Essential Features for selecting the software application for the institutional repository, and make some recommendations on them.

V. To find the role of University Librarians for the event of institutional repository of all universities of Maharashtra & Gujarat.

6. Hypotheses

I. The majority of institutional repositories are still in the early stages of development.

II. The majority of institutional repositories are run by the Knowledge Resource Centers of all Universities of Maharashtra & Gujarat.

III. A variety of availability of infrastructure and also software applications of institutional repositories, such as DSpace, EPrints, Fedora, Greenstone, GNU, ETD-db are mostly used in the Knowledge Resource Centers of all Universities of Maharashtra & Gujarat.

IV. There is a formal essential features are to be considered of the software application of Institutional Repository while implementation of institutional repositories at Knowledge Resource Centers of all Universities of Maharashtra & Gujarat such as- Language Criteria, Create-Read-Update-Delete for all artifacts, and web2web integration.

V. The development of the institutional repository at Knowledge Resource Centers of all Universities of Maharashtra & Gujarat relies heavily on Directors, KRCs.

7. Research Methodology

Research Method: The basis requirement of the study is the collection of required data from the various Knowledge Resource Centers of all Universities of Maharashtra & Gujarat which are ongoing Institutional Repository online and with help of various software applications such as DSpace, EPrints, Fedora, Greenstone, etc.

The survey and actual visits the Institutional Repository websites of Knowledge Resource Centers of all Universities of Maharashtra & Gujarat will be adopted for this research.

Tools: The researcher wishes to use the self-developed structured questionnaire for the data collection. And as per the need the researcher takes virtual interviews and made virtual communication through email or telephone with Head or Administrator of the concern Institutional Repository. And also the data will be collected by the virtual visit to the Institutional Repository website of Knowledge Resource Centers of all Universities of Maharashtra & Gujarat and look about the software applications being used.

Sample: The ongoing, functional and available on only internet institutional repositories of Knowledge Resource Centers of all Universities of Maharashtra & Gujarat. To compose the list in this manner the researcher may visits the various directories, Forums, Blogs, individual website of universities of Maharashtra & Gujarat.

Style of Manual: The research report will be documented by using APA style.

8. Significance of Study

A software application is a backbone of any Institutional Repository, which is established globally or access over the internet. Because a software repository houses important packages, it requires the highest level of security to protect its data from hackers. As a result, the majority of software repository architectures are malware- and other security-free.

The institutional repository is a central repository for digital content. It saves both published and unpublished works. The creation of an institutional repository in academic and research institutes facilitates the sharing and preservation of digital resources among research scientists, faculty, and students. These digital resources are more visible and accessible, encouraging research academics to pursue their studies. The purpose of an institutional repository is to make digital collections freely accessible on the internet or intranet. It boosted researcher interest in cutting-edge research.

Any institute's visibility and status are enhanced by having an institutional repository. Institutional repositories allow access to the institutions' own digital documents. Institutional repositories promote intellectual communication, increase visibility globally, and increase knowledge. Through

the academic and research institutions' institute repository system, the researcher will gain worldwide notice. However, many academic and research institutions have yet to establish their own institutional repository.

9. Scope and Limitations

The scope of this study to compare the existing software applications used for the Institutional Repository by the Knowledge Resource Centers of all Universities of Maharashtra & Gujarat. And also it is done from establishment and modification of Institutional Repository.

Institutional Repository which is available globally or over the internet only these repositories of Knowledge Resource Centers of all Universities of Maharashtra & Gujarat are to be considered for this study.

The study omits the physical or offline available Institutional Repository of Knowledge Resource Centers of all Universities of Maharashtra & Gujarat.

For this study the pre identified universities is to be considered such as- State University (SU), Deemed University (DU), Private University (PU), Central University (CU); the total number of these universities are as-

Sr. No.	State	Total number of Universities			
		SU	DU	PU	CU
1	Maharashtra	20	17	16	01
2	Gujarat	18	02	08	01

Source 1)https://www.ugc.ac.in/stateuniversity.aspx
2)https://www.ugc.ac.in/oldpdf/Private%20University/Consolidated_List_Private_Universities.pdf
3)https://www.ugc.ac.in/deemeduniversity.aspx

The researcher virtually visits the each university website one by one and verifies the availability of institutional repository over to internet; and only those are available over internet is to be considered to the research.

This present study is only for limited for the institutional repositories at Knowledge Resource Centers of all Universities of Maharashtra & Gujarat. It may be differ for other that area.

10. Proposed work plan with Tentative Chapter scheme

Chapter – I Introduction

Introduction, Proposed research, Definitional analysis, Purpose, Objectives, Hypothesis, Scope and Limitations, Methodology are all covered in this chapter.

Chapter - II Review of Literature

This chapter pays attention to exploring the review of the past and recent studies in the process of development of institutional repository by the Knowledge Resource Centers of all Universities of Maharashtra & Gujarat in all aspects across the globe.

Chapter – III Institutional Repository and Software applications used for institutional repositories.

In this Chapter the researcher focuses the current status of the institutional repositories from the pre identified Institutional Repositories by the Knowledge Resource Centers of all Universities of Maharashtra & Gujarat.

Similarly, the researcher states the comparison between software applications which are mostly used for the institutional repositories such as DSpace, Fedore, EPrint, Greenstone, ETD-db and other. The system design and data flow charts are also specified in this chapter for each software application.

Chapter – IV Data Interpretation and analysis

The data collected by the survey, virtual visits, observations, virtual visits to Institutional Repository website will be conceptually described and distributed into the tables. Next part the tabulated data will be analyzed by using statistical method such as Ms-Excel. The data analysis and interpretation will be compared with the hypotheses of the research to validate or invalidate the hypotheses.

Chapter – V Summary of Findings, Conclusion and Model Plan.

In this chapter the findings and recommendations will be delivered. Additionally, in this chapter will be discuss the criteria for the selection of the suitable software application for introduce, development, modification of

institutional repository for the academic institutions. And also the researcher set new parameters for selection the best software application for institutional repositories.

11. Tentative year-wise plan of work and targets to be achieved

Sr. No.	Period	Proposed Research Work
1	28/07/2021 to 31/12/2021	• RAC • Reading different thesis, books, references for selection of topic • Attend coursework
2	01/01/2022 to 30/06/2022	• First Progress Report Submission • Synopsis writing, • RRC, • Submission of synopsis • Review of related literature to relate the research topic
3	01/07/2022 to 31/12/2022	• Second Progress Report Submission • Preparation and standardization of Questionnaire • Pilot Study
4	01/01/2023 to 30/06/2023	• Third Progress Report Submission • Data Collection • Analysis and interpretation of data
5	01/07/2023 to 31/12/2023	• Forth Progress Report Submission • Research Writing (Chapter wise)
6	01/01/2024 to 30/06/2024	• Fifth Progress Report Submission • Final synopsis submission, • Pre Ph.D. Synopsis submission
7	01/07/2024 to 31/12/2024	• Sixth Progress Report Submission • Plagiarism Checking • CD Submission • Final Viva-voce

12. Expected Outcome

The research is likely to identify the needy parameters for the selection of best suitable software application used for the Institutional Repository of all University libraries of Maharashtra & Gujarat. This research focuses on the idea behind the development and modification of software of Institutional Repository. Additionally, the researcher develops and suggests the new

guidelines for the selection on software application for institutional repository for its own by the Knowledge Resource Centers of all Universities of Maharashtra & Gujarat. And also state what should librarian can do or how can initiate to develop their institutional repository.

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14. Appendixes

In this section the researcher may be appends-

a. A list of all Universities of Maharashtra & Gujarat.

b. A list of Knowledge Resource Centres having institutional repository available over internet only.

c. A self-developed table blank format for data collection.

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